

CLAIMS

1. A polishing slurry comprising:

a metal-oxidizing agent; a metal anticorrosive agent; an
5 oxidized metal dissolving agent; and water,

wherein the oxidized metal dissolving agent is at least
one kind selected from the group consisting of an acid in which
the dissociation constant (pKa) of a first dissociable acid group
is 3.5 or more, an ammonium salt of the acid and an organic acid
10 ester of the acid, the pH of the polishing slurry is within the
range of 3 to 4, and the concentration of the metal-oxidizing
agent is within the range of 0.01 to 3 percent by weight.

2. The polishing slurry of claim 1, wherein the concentration
of the oxidizing agent is within the range of 0.01 to 1.5 percent
15 by weight.

3. The polishing slurry of claim 1 or 2, wherein the oxidized
metal dissolving agent is an organic acid.

4. The polishing slurry of claim 3, wherein the organic acid
is at least one kind selected from the group consisting of lactic
20 acid, succinic acid, adipic acid, glutaric acid, benzoic acid,
quinaldic acid, butyric acid and valeric acid.

5. The polishing slurry of any one of claims 1 to 4, wherein
the metal anticorrosive agent is at least one kind selected from
the group consisting of a compound having a triazole skeleton
25 other than benzotriazole, a compound having a pyrimidine skeleton,
a compound having an imidazole skeleton, a compound having a
guanidine skeleton, a compound having a thiazole skeleton, a

compound having a pyrazole skeleton and benzotriazole.

6. The polishing slurry of any one of claims 1 to 5, wherein the metal-oxidizing agent is at least one kind selected from the group consisting of hydrogen peroxide, ammonium persulfate, ferric nitrate, nitric acid, potassium periodate, hypochlorous acid and ozone water.

7. The polishing slurry of any one of claims 1 to 6, wherein the polishing slurry contains polishing particles.

8. The polishing slurry of claim 7, wherein the polishing particles are at least one kind selected from the group consisting of silica, alumina, ceria, titania, zirconia and germania.

9. The polishing slurry of claim 7 or 8, wherein the polishing particles are colloidal silica or colloidal alumina having an average particle diameter of 100 nm or less.

10. The polishing slurry of any one of claims 1 to 9, wherein the polishing slurry contains a water-soluble polymer compound.

11. The polishing slurry of claim 10, wherein the water-soluble polymer compound is at least one kind selected from the group consisting of polyacrylic acid and the salt thereof, polymethacrylic acid and the salt thereof, polyacrylamide, polyvinyl alcohol, and polyvinylpyrrolidone.

12. A polishing method comprising:

a first polishing step of polishing a conductive substance layer of a substrate having an interlaminar insulating film of which the surface consists of dented portions and projected portions, a barrier conductor layer coating the interlaminar insulating film along the surface thereof, and the conductive

substance layer with which the dented portions are filled up and coats the barrier conductor layer to expose the barrier conductor layer of the projected portions; and

a second polishing step of polishing chemically and mechanically polishing at least the barrier conductor layer and the conductive substance layer of the dented portions while supplying the polishing slurry of any one of claims 1 to 11 to expose the interlaminar insulating film of the projected portions.

13. The polishing method of claim 12, wherein the barrier conductor layer prevents the conductive substance from diffusing to the interlaminar insulating film, and the conductive substance is at least one of copper and a copper alloy.

14. The polishing method of claim 12 or 13, wherein the barrier conductor layer is a single layer made of one kind or a lamination layer made of two kinds or more selected from the group consisting of tantalum, tantalum nitride, a tantalum alloy, titanium, titanium nitride, a titanium alloy, tungsten, tungsten nitride and a tungsten alloy.